

CLAIMS

1. A process for the manufacture of an outer membrane vesicle preparation from a bacterium, wherein the bacterial membrane is disrupted substantially in the absence of deoxycholate detergent.
- 5 2. The process of claim 1, wherein the bacterial membrane is disrupted substantially in the absence of any detergent.
3. The process of claim 1 or claim 2, comprising the following basic steps: (a) treating bacterial cells in the substantial absence of detergent; (b) centrifuging the composition from step (a) to separate the outer membrane vesicles from treated cells and cell debris, and collecting the
10 supernatant; (c) performing a high speed centrifugation of the supernatant from step (b) and collecting the outer membrane vesicles in a pellet; (d) re-dispersing the pellet from step (c) in a buffer; (e) performing a second high speed centrifugation in accordance with step (c), collecting the outer membrane vesicles in a pellet; (f) re-dispersing the pellet from step (e) in an aqueous medium.
- 15 4. The process of claim 3, further comprising the following steps: (g) performing sterile filtration through at least two filters of decreasing pore size of the re-dispersed composition from step (f); and (h) optionally including the composition from step (g) in a pharmaceutically acceptable carrier and/or adjuvant composition.
5. The process of claim 3 or claim 4, wherein step (b) comprises centrifugation at around 5000 –
20 10000 g for up to 1 hour, and steps (c) and (e) comprise centrifugation at around 35000 – 100000 g for up to 2 hours.
6. The process of any preceding claim, wherein membrane disruption is by sonication, homogenisation, microfluidisation, cavitation, osmotic shock, grinding, French press, blending, or any other physical technique.
- 25 7. The process of any preceding claim, wherein the buffer used in step (d) and/or in step (f) is a Tris buffer, a phosphate buffer, or a histidine buffer.
8. The process of any one of claims 5 to 7, wherein step (g) ends with a filter of pore-size of about 0.2µm.
9. The process of any preceding claim, wherein the bacterium from which OMVs are prepared is
30 from genus *Moraxella*, *Shigella*, *Pseudomonas*, *Treponema*, *Porphyromonas*, *Helicobacter* or *Neisseria*.
10. The process of claim 9, wherein the bacterium is *N.meningitidis* or *N.gonorrhoeae*.
11. The process of claim 10, wherein the *N.meningitidis* is from serogroup B.

12. The process of any preceding claim, further comprising the step of formulating an immunologically effective amount of the OMVs as an immunogenic composition
13. An OMV composition obtainable by the process of any preceding claim.
14. A *Neisseria meningitidis* vesicle composition, characterised in that the vesicles include (i) NspA protein, (ii) '287' protein and (iii) '741' protein.
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15. The composition of claim 13 or claim 14, wherein the composition is sterile and/or pyrogen-free and/or buffered at a pH of between 6.0 and 7.0.
16. The composition of any one of claims 13 to 15 for use as a medicament.
17. A method of raising an immune response in a patient, comprising administering to a patient a composition of any one of claims 13 to 15.
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18. The use of an outer membrane vesicle of any one of claims 13 to 15 in the manufacture of a medicament for raising an immune response in an patient.